

We claim:

1. A method of processing a data signal for transmission to a remote device, the method comprising:  
5       synchronizing the data signal with a clock signal to produce a composite signal;  
      converting the composite signal to an outgoing signal, the outgoing signal being an optical signal; and  
      transmitting a plurality of copies of the outgoing signal, at least two copies of the outgoing signal being transmitted in different directions.  
10
2. The method as defined by claim 1 wherein the outgoing signal is in the infrared spectrum.
3. The method as defined by claim 1 further comprising:  
15       amplifying the outgoing signal.
4. The method as defined by claim 1 further comprising:  
      encrypting the composite signal prior to converting it to the outgoing signal.
- 20   5. The method as defined by claim 1 further comprising:  
      receiving an incoming signal, the incoming signal being an optical signal and having a specified timing signal, the clock signal of the composite signal being synchronized with the specified timing signal.
- 25   6. The method as defined by claim 1 wherein the data signal includes at least one of video data and audio data.
7. The method as defined by claim 1 wherein the plurality of copies of the outgoing signal are transmitted through the air.
- 30

8. The method as defined by claim 1 where the different directions overlap.

9. A network device for transmitting a data signal to a remote device, the network device comprising:

5 a synchronization module for synchronizing the data signal with a clock signal to produce a composite signal;

a signal converter operatively coupled with the synchronization module, the signal converter converting the composite signal to an outgoing signal, the outgoing signal being an optical signal; and

10 an optical transmitter operatively coupled with the signal converter, the optical transmitter transmitting a plurality of copies of the outgoing signal, at least two copies of the outgoing signal being transmitted in different directions.

10. The network device as defined by claim 9 wherein the outgoing signal is in the infrared spectrum.

11. The network device as defined by claim 9 further comprising:  
an amplifier operatively coupled with the signal converter, the amplifier amplifying the outgoing signal.

12. The network device as defined by claim 9 further comprising:  
an encryption module for encrypting the composite signal prior to converting it to the outgoing signal.

25 13. The network device as defined by claim 9 further comprising:  
a receiver for receiving an incoming signal, the incoming signal being an optical signal and having a specified timing signal, the clock signal of the composite signal being synchronized with the specified timing signal.

14. The network device as defined by claim 9 wherein the data signal includes at least one of video data and audio data.

15. The network device as defined by claim 9 wherein the plurality of copies of the outgoing signal are transmitted through the air.

16. The network device as defined by claim 9 where the different directions overlap.

17. A computer program product for use on a computer system for processing a data signal for transmission to a remote device, the computer program product comprising a computer usable medium having computer readable program code thereon, the computer readable program code, the computer program product comprising:

program code for synchronizing the data signal with a clock signal to produce a composite signal;

program code for converting the composite signal to an outgoing signal, the outgoing signal being an optical signal; and

program code for transmitting a plurality of copies of the outgoing signal, at least two copies of the outgoing signal being transmitted in different directions.

18. The computer program product as defined by claim 17 wherein the outgoing signal is in the infrared spectrum.

19. The computer program product as defined by claim 17 further comprising: program code for amplifying the outgoing signal.

20. The computer program product as defined by claim 17 further comprising: program code for encrypting the composite signal prior to converting it to the outgoing signal.

21. The computer program product as defined by claim 17 further comprising:

program code for receiving an incoming signal, the incoming signal being an optical signal and having a specified timing signal, the clock signal of the composite signal being synchronized with the specified timing signal.

5        22.     The computer program product as defined by claim 17 wherein the data signal includes at least one of video data and audio data.

23.     The computer program product as defined by claim 17 wherein the plurality of copies of the outgoing signal are transmitted through the air.

10       24.     The computer program product as defined by claim 17 where the different directions overlap.

25.     A method of processing data received from a remote device, the method comprising:

15           receiving a plurality of copies of a single optical signal, the optical signal being the optical form of a first data signal;

20           converting the plurality of copies of the optical signal into a plurality of second data signals, each second data signal having data from one of the copies of the optical signal;

          storing the plurality of second data signals in memory; and

          reconstructing the first data signal from the plurality of second data signals in memory.

25       26.     The method as defined by claim 25 wherein the act of reconstructing comprises:  
          designating one of the plurality of copies of the optical signal as the primary optical signal, the second data signal in memory that represents the primary optical signal being the primary second data signal;  
          retrieving primary second data signal; and

if the primary second data signal is incomplete, then retrieving additional data of the first data signal from at least one of the other second data signals in memory.

27. The method as defined by claim 25 wherein the optical signal is an infrared signal.

28. The method as defined by claim 25 wherein the plurality of copies of the optical signal are received through the air.

29. The method as defined by claim 25 wherein the first data signal includes at least one of audio data and video data.

30. The method as defined by claim 25 further comprising:  
generating a first outgoing signal, the first outgoing signal being a data signal;  
synchronizing the first outgoing signal with a timing signal to produce a composite signal;  
converting the composite signal into a second outgoing signal that is an optical signal;  
transmitting a plurality of copies of the second outgoing signal to the remote device.

31. The method as defined by claim 30 wherein at least two of the plurality of outgoing signals are transmitted in different directions.

32. An apparatus for processing data received from a remote network device, the apparatus comprising:  
an input module for receiving a plurality of copies of a single optical signal, the optical signal being the optical form of a first data signal;  
an optical converter operatively coupled with the input module, the optical converter converting the plurality of copies of the optical signal into a plurality of second

data signals, each second data signal having data from one of the copies of the optical signal;

memory for storing the plurality of second data signals; and

a signal reconstruction module operatively coupled with the memory, the signal reconstruction module reconstructing the first data signal from the plurality of second data signals in memory.

33. The apparatus as defined by claim 32 wherein one of the plurality of copies of the optical signal is designated as the primary optical signal, the second data signal in memory that represents the primary optical signal being the primary second data signal, the apparatus further comprising:

a signal retrieving module for retrieving primary second data signal,  
if the primary second data signal is incomplete, then the signal retrieving module retrieves additional data of the first data signal from at least one of the other second data signals in memory.

34. The apparatus as defined by claim 32 wherein the optical signal is an infrared signal.

35. The apparatus as defined by claim 32 wherein the plurality of copies of the optical signal are received through the air.

36. The apparatus as defined by claim 32 wherein the first data signal includes at least one of audio data and video data.

37. The apparatus as defined by claim 32 further comprising:

a signal generator for generating a first outgoing signal, the first outgoing signal being a data signal;

a synchronization module for synchronizing the first outgoing signal with a timing signal to produce a composite signal;

a signal converter for converting the composite signal into a second outgoing signal that is an optical signal; and

an output for transmitting a plurality of copies of the second outgoing signal to the remote device.

5

38. The apparatus as defined by claim 37 wherein at least two of the plurality of outgoing signals are transmitted in different directions.

10

39. A computer program product for use on a computer system for processing data received from a remote device, the computer program product comprising a computer usable medium having computer readable program code thereon, the computer readable program code comprising:

program code for receiving a plurality of copies of a single optical signal, the optical signal being the optical form of a first data signal;

program code for converting the plurality of copies of the optical signal into a plurality of second data signals, each second data signal having data from one of the copies of the optical signal;

program code for storing the plurality of second data signals in memory; and

program code for reconstructing the first data signal from the plurality of second data signals in memory.

40. The computer program product as defined by claim 39 where in the program code for reconstructing comprises:

program code for designating one of the plurality of copies of the optical signal as the primary optical signal, the second data signal in memory that represents the primary optical signal being the primary second data signal;

program code for retrieving primary second data signal; and

program code for retrieving additional data of the first data signal from at least one of the other second data signals in memory if the primary second data signal is incomplete.

25

30

41. The computer program product as defined by claim 39 wherein the optical signal is an infrared signal.

42. The computer program product as defined by claim 39 wherein the plurality of  
5 copies of the optical signal are received through the air.

43. The computer program product as defined by claim 39 wherein the first data signal includes at least one of audio data and video data.

44. The computer program product as defined by claim 39 further comprising:  
10 program code for generating a first outgoing signal, the first outgoing signal being a data signal;  
program code for synchronizing the first outgoing signal with a timing signal to produce a composite signal;  
15 program code for converting the composite signal into a second outgoing signal that is an optical signal;  
program code for transmitting a plurality of copies of the second outgoing signal to the remote device.

45. The computer program product as defined by claim 44 wherein at least two of the plurality of outgoing signals are transmitted in different directions.

46. The computer program product as defined by claim 39 wherein at least two of the plurality of copies of the optical signal are received from different directions.

47. A system for transmitting data signals, the system comprising:  
25 a first network device having a first transponder;  
a second network device having a second transponder,  
the first and second transponders each utilizing optical signals to communicate,



the first transponder being configured to transmit a plurality of copies of a single optical signal in at least two different directions.

48. The system as defined by claim 47 wherein the second transponder is configured to receive at least one of the plurality of copies of the single optical signal.

49. The system as defined by claim 48 wherein the single optical signal is the optical version of a composite signal, the composite signal being a data signal having outgoing data to be transmitted by the first network device, the outgoing data being synchronized with a clock signal.

50. The system as defined by claim 49 wherein the second network device includes a processor for reconstructing the composite signal from the at least one of the plurality of copies of the single optical signal.